Magnetism and the Motor Effect

Magnetism and electromagnetism · 4 questions · step-by-step answers at the end

Name: Date: Score: / 4

USEFUL EQUATIONS

$F = BIL$

Questions

Show your working in the space under each question.

1. State three ways to make an electromagnet stronger.

2. A 0.50 m wire carrying 3.0 A lies at right angles to a magnetic field of 0.20 T. Find the force on it.

3. What happens to the force on a wire if both the current and the magnetic field are reversed?

4. How could you show the shape of the magnetic field around a bar magnet?

Step-by-step answers

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1. **More turns** on the coil, a **larger current**, and adding a **soft iron core**.
2. 1. F = BIL = 0.20 × 3.0 × 0.50.
   2. F = **0.30 N**, at right angles to both the wire and the field.

   Answer: 0.30 N
3. It stays in the **same direction**.
4. Use **iron filings**, or move a **plotting compass** around it and mark where it points.